

WHAT IS CLAIMED IS:

1. A thermo reversible recording medium comprising:  
a substrate; and

a heat sensible layer, on said substrate, made mainly  
5 from resin and organic lower molecular weight substance,  
said heat sensible layer capable of becoming transparent  
or non-transparent or vice versa depending on temperature,

wherein the organic lower molecular weight substance  
is a linear hydrocarbon-containing compound having no  
10 carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having  
a urethane bond,

(2) linear hydrocarbon-containing compounds having  
a sulfonyl bond,

15 (3) linear hydrocarbon-containing compounds having  
an oxalic diamide bond,

(4) linear hydrocarbon-containing compounds having  
a diacylhydrazide bond,

(5) linear hydrocarbon-containing aliphatic  
20 compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic  
compounds having a urea bond and amide bond,

(7) linear hydrocarbon-containing aliphatic  
compounds having a plurality of urea bonds,

25 (8) linear hydrocarbon-containing cyclic compounds

having a urea bond,

(9) linear hydrocarbon-containing cyclic compounds having an amide bond.

- 5 2. The thermo reversible recording medium according to claim 1 wherein (1), (2), (3), (4), (8) and (9) among linear hydrocarbon-containing compounds (A) have at least one of a phenylene group, cyclohexylene group, cyclohexyl group, phenyl group, and morpholino benzopyrrolidyl.

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3. The thermo reversible recording medium according to claim 1 wherein at least one end of the molecule of the linear hydrocarbon-containing compound (A) is a methyl group.

- 15 4. The thermo reversible recording medium according to claim 1 wherein the linear hydrocarbon-containing compound (A) has a melting point of 100 °C or more.

5. The thermo reversible recording medium according to  
20 claim 1 wherein at least one of linear hydrocarbon-containing compounds (B) having a melting point lower than the melting point of said linear hydrocarbon-containing compound (A) by 20 °C or more and having no carboxyl group is further used as the organic lower molecular weight substance.

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6. The thermo reversible recording medium according claim 1 wherein the total carbon number of linear hydrocarbons of the linear hydrocarbon-containing compound (A) and the linear hydrocarbon-containing compound (B) is from 6 to 60.

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7. The thermo reversible recording medium according to claim 5 wherein the linear hydrocarbon-containing compound (B) has a melting point of 50 °C or more and less than 100 °C.

10 8. The thermo reversible recording medium according to claim 6 wherein the linear hydrocarbon-containing compound (B) has a melting point of 50 °C or more and less than 100 °C.

15 9. The thermo reversible recording medium according to claim 5 wherein the mixing ratio by weight of the linear hydrocarbon-containing compound (A) to the linear hydrocarbon-containing compound (B) is 80:20 to 1:99.

20 10. The thermo reversible recording medium according to claim 6 wherein the mixing ratio by weight of the linear hydrocarbon-containing compound (A) to the linear hydrocarbon-containing compound (B) is 80:20 to 1:99.

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11. The thermo reversible recording medium according to claim 5 wherein the linear hydrocarbon-containing compound (B) is at least one selected from fatty esters, ketones having an alkyl group, dibasic acid esters, alcohol difatty esters, aliphatic monoamide compounds and aliphatic monourea compounds.

12. The thermo reversible recording medium according to claim 6 wherein the linear hydrocarbon-containing compound (B) is at least one selected from fatty esters, ketones having an alkyl group, dibasic acid esters, alcohol difatty esters, aliphatic monoamide compounds and aliphatic monourea compounds.

13. The thermo reversible recording medium according to claim 1 wherein the clearing upper limit temperature is 115 °C or more, the temperature difference between the clearing upper limit temperature and the opacifying lower limit temperature is 20 °C or less, and the clearing temperature range is 30 °C or more.

14. The thermo reversible recording medium according to claim 1 wherein the resin has a gel proportion of 30% or more.

15. The thermo reversible recording medium according to claim 1 wherein at least part of the resin is cross-linked.

16. A thermo reversible recording label having two  
5 surfaces, one surface provided with an adhesive layer and the other surface provided with a thermo reversible recording medium, said thermo reversible recording medium including  
a substrate; and

a heat sensible layer, on said substrate, made mainly  
10 from resin and organic lower molecular weight substance, said heat sensible layer capable of becoming transparent or non-transparent or vice versa depending on temperature,

wherein the organic lower molecular weight substance is a linear hydrocarbon-containing compound having no  
15 carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having a urethane bond,

(2) linear hydrocarbon-containing compounds having a sulfonyl bond,

20 (3) linear hydrocarbon-containing compounds having an oxalic diamide bond,

(4) linear hydrocarbon-containing compounds having a diacylhydrazide bond,

(5) linear hydrocarbon-containing aliphatic  
25 compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic compounds having a urea bond and amide bond,

(7) linear hydrocarbon-containing aliphatic compounds having a plurality of urea bonds,

5 (8) linear hydrocarbon-containing cyclic compounds having a urea bond,

(9) linear hydrocarbon-containing cyclic compounds having an amide bond.

10 17. A member comprising:

an information memorizing part which stores information; and

a reversible display part which is at least composed of a heat sensible layer,

15 wherein said heat sensible layer is made mainly from resin and organic lower molecular weight substance, said heat sensible layer capable of becoming transparent or non-transparent or vice versa depending on temperature,

wherein the organic lower molecular weight substance  
20 is a linear hydrocarbon-containing compound having no carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having a urethane bond,

(2) linear hydrocarbon-containing compounds having  
25 a sulfonyl bond,

(3) linear hydrocarbon-containing compounds having an oxalic diamide bond,

(4) linear hydrocarbon-containing compounds having a diacylhydrazide bond,

5 (5) linear hydrocarbon-containing aliphatic compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic compounds having a urea bond and amide bond,

(7) linear hydrocarbon-containing aliphatic  
10 compounds having a plurality of urea bonds,

(8) linear hydrocarbon-containing cyclic compounds having a urea bond,

(9) linear hydrocarbon-containing cyclic compounds having an amide bond.

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18. The member according to claim 17 wherein said information memorizing part is supported in or held by a holding member, and said reversible display part is provided on said holding member.

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19. The member according to claim 18 wherein said holding member is a card, disk, disk cartridge or tape cassette.

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20. The member according to claim 17 wherein said reversible display part is a thermo reversible recording label having two surfaces, one surface provided with an adhesive layer and the other surface provided with a thermo reversible recording medium, said thermo reversible recording medium including

a substrate; and

a heat sensible layer, on said substrate, made mainly from resin and organic lower molecular weight substance, said heat sensible layer capable of becoming transparent or non-transparent or vice versa depending on temperature,

wherein the organic lower molecular weight substance is a linear hydrocarbon-containing compound having no carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having a urethane bond,

(2) linear hydrocarbon-containing compounds having a sulfonyl bond,

(3) linear hydrocarbon-containing compounds having an oxalic diamide bond,

(4) linear hydrocarbon-containing compounds having a diacylhydrazide bond,

(5) linear hydrocarbon-containing aliphatic compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic



compounds having a urea bond and amide bond,

(7) linear hydrocarbon-containing aliphatic compounds having a plurality of urea bonds,

(8) linear hydrocarbon-containing cyclic compounds  
5 having a urea bond,

(9) linear hydrocarbon-containing cyclic compounds having an amide bond.

21. A method of processing image in which an image is formed  
10 on or deleted from a heat sensible layer made mainly from resin and organic lower molecular weight substance, said heat sensible layer capable of becoming transparent or non-transparent or vice versa depending on temperature,

wherein the organic lower molecular weight substance  
15 is a linear hydrocarbon-containing compound having no carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having a urethane bond,

(2) linear hydrocarbon-containing compounds having  
20 a sulfonyl bond,

(3) linear hydrocarbon-containing compounds having an oxalic diamide bond,

(4) linear hydrocarbon-containing compounds having a diacylhydrazide bond,

25 (5) linear hydrocarbon-containing aliphatic

compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic  
compounds having a urea bond and amide bond,

(7) linear hydrocarbon-containing aliphatic  
5 compounds having a plurality of urea bonds,

(8) linear hydrocarbon-containing cyclic compounds  
having a urea bond,

(9) linear hydrocarbon-containing cyclic compounds  
having an amide bond.

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22. The method according to claim 21 wherein the image  
is formed on said heat sensible layer by using a thermal  
head.

15 23. The method according to claim 21 wherein the image  
on said heat sensible layer is deleted by using a thermal  
head or a ceramic heater.

24. An image processing apparatus comprising an image  
20 forming/deleting unit which forms an image on or delete an  
image from a heat sensible layer made mainly from resin and  
organic lower molecular weight substance, said heat sensible  
layer capable of becoming transparent or non-transparent  
or vice versa depending on temperature,

25 wherein the organic lower molecular weight substance

is a linear hydrocarbon-containing compound having no carboxyl group (A) and selected from

(1) linear hydrocarbon-containing compounds having a urethane bond,

5 (2) linear hydrocarbon-containing compounds having a sulfonyl bond,

(3) linear hydrocarbon-containing compounds having an oxalic diamide bond,

10 (4) linear hydrocarbon-containing compounds having a diacylhydrazide bond,

(5) linear hydrocarbon-containing aliphatic compounds having a urea bond and urethane bond,

(6) linear hydrocarbon-containing aliphatic compounds having a urea bond and amide bond,

15 (7) linear hydrocarbon-containing aliphatic compounds having a plurality of urea bonds,

(8) linear hydrocarbon-containing cyclic compounds having a urea bond,

20 (9) linear hydrocarbon-containing cyclic compounds having an amide bond.

25. The apparatus according to claim 24 wherein said image forming/deleting unit includes an image forming unit that forms the image, wherein said image forming unit is a thermal  
25 head.

26. The apparatus according to claim 24 wherein said image forming/deleting unit includes an image deleting unit that deletes the image, wherein said image deleting unit is a thermal head or ceramic heater.

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